Disease Name — Trifunctional protein deficiency

Alternate name(s)	N/A
Acronym	LCHADD/TFP
Disease Classification	Fatty Acid Oxidation Disorder
Variants	Yes
Variant name	Mitochondrial trifunctional protein deficiency
Symptom onset	Neonatal, infancy
Symptoms	Hypoketotic hypoglycemia, hypotonia, cardiomyopathy, hepatic disease, peripheral neuropathy and pigmentary retinopathy, rhabdomyolysis, sudden death
Natural history without treatment	Possible developmental delay due to damage from hypoglycemic episodes, possible death due to cardiomyopathy or hepatic failure.
Natural history with treatment	Intelligence is usually normal if there is no damage due to hypoglycemic crisis. Peripheral neuropathy, if present, may not improve with treatment.
Treatment	Avoidance of fasting, use of uncooked starch, MCT treatments, carnitine supplementation, DHA supplementation (may prevent retinopathy, but this has not been proven)
Other	Maternal complications in pregnancy include acute fatty liver of pregnancy, HELLP syndrome, and pre-eclampsia
Emergency Medical Treatment	See sheet from American College of Medical Genetics (attached) or for more information, go to website: http://www.acmg.net/StaticContent/ACT/C16-OH.pdf
Physical phenotype	Hypotonia, cardiomyopathy and possible retinal changes
Inheritance	Autosomal recessive
General population incidence	Rare
Ethnic differences	Yes
Population	Finnish
Ethnic incidence	1:240 carrier rate for common mutation G1528C in Finland
Enzyme location	Inner mitochondrial membrane, liver, heart, fibroblasts
Enzyme Function	Metabolizes long chain fatty acids (C-12 to C-16 in length)
Missing Enzyme	Long-chain 3-hydroxyacyl-CoA dehydrogenase or mitochondrial trifunctional protein
Metabolite changes	Increased 3-hydroxydicarboxylic acids in urine, increased saturated and unsaturated 3-hydroxy organic acids, possible elevated CPK during acute illness.
Prenatal testing	Enzyme analysis, protein analysis and direct DNA (when applicable).
MS/MS Profile	C18:OH, C16:1OH, C16OH
OMIM Link	http://www.ncbi.nlm.nih.gov/entrez/dispomim.cgi?id=600890
Genetests Link	www.genetests.org
Support Group	FOD Family Support Group http://www.fodsupport.org Save Babies through Screening Foundation http://www.savebabies.org Genetic Alliance http://www.geneticalliance.org

4-26-2010 Update